CLAIMS

What is claimed is:

1. A temperature sensor for a radiant heating unit formed of a heating coil disposed in a cup and a plate covering the cup, comprising:

a switch having a switch housing attached to the cup and stationary contacts affixed to the switch housing and at least one movable switching contact that cooperates with the stationary contacts;

a rod having at least two sections; and

a tube having two ends and extending in a direction essentially parallel to the plate through at least one thermally insulating wall of the cup into a hollow space formed between the cup and the plate,

wherein one end of the tube is connected with the switch housing and the other end of the tube is closed off and is operatively connected to a first of the at least two sections of the rod, with a second of the at least two sections of the rod extending into the switch housing and operating the movable switching contact,

wherein the tube and the rod have different thermal expansion coefficients,

wherein the second section of the rod terminates outside the hollow space of the cup, and

wherein the product of the thermal expansion coefficient of the second section of the rod and a length of the second section located in the switch housing is selected based on a product of the thermal expansion coefficient of the switch housing and a length of the switch housing between a side of

the switch housing facing the cup and support members of the stationary switch contacts in a direction parallel to the rod.

2. The temperature sensor of claim 1, wherein the product of the thermal expansion coefficient of the second section of the rod and the length of the second section projecting into the switch housing is smaller than the product of the thermal expansion coefficient of the switch housing and the length of the switch housing between the side of the switch housing facing the cup and the support members of the stationary switch contacts in the direction parallel to the rod.

3. The temperature sensor of claim 1, wherein the product of the thermal expansion coefficient of the second section of the rod and the length of the second section projecting into the switch housing is equal to the product of the thermal expansion coefficient of the switch housing and the length of the switch housing between the side of the switch housing facing the cup and the support members of the stationary switch contacts in the direction parallel to the rod, and wherein the housing and the second section of the rod are fabricated of the same material and wherein the length of the second section of the rod is essentially equal to the length of the switch housing between the side of the switch housing facing the cup and the support members of the stationary switch contacts in the direction parallel to the rod.

4. The temperature sensor of claim 1, wherein the at least two sections of the rod have different heat absorption coefficients.

5. The temperature sensor of claim 4, wherein the heat absorption coefficients are defined by surface features of the rod, said surface features selected from the group consisting of surface coloration, cross-sectional profiles and surface roughness.

6. The temperature sensor of claim 4, wherein the heat absorption coefficients are adapted by adding a metal.

7. The temperature sensor of claim 4, wherein the heat absorption coefficients are adapted by addition of Al_2O_3.

8. The temperature sensor of claim 4, wherein the heat absorption coefficient of the second section of the rod is matched to a heat absorption coefficient of the housing.

9. The temperature sensor of claim 1, wherein the plate comprises a ceramic plate or a steel plate which form a cooking surface.